

34. In a communication system adapted to transmit a communication signal comprising an input speech component and an input tonal component, apparatus for maintaining the input tonal component comprising:

an input for receiving the communication signal;

a processor arranged to:

detect the input tonal component;

generate a second tonal component responsive to the input tonal component having at least a frequency related to a frequency of the input tonal component; and

generate an output signal responsive to said input signal, said output signal comprising at least in part said second tonal component; and

an output for transmitting the output signal, including said second tonal component.

35. Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a dual-tone multi-frequency (DTMF) signal.

36. Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a facsimile tone signal.

37. Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a dial tone signal.

38. Apparatus as claimed in claim 34 wherein the input tonal component and the second tonal component each comprises a busy tone signal.

39. Apparatus as claimed in claim 34 wherein the input tonal component is processed by said processor in blocks of samples and wherein the processor detects the presence of the input tonal component after processing a predetermined number of said blocks.

40. Apparatus as claimed in claim 34 wherein said processor is arranged to generate said second tonal component in said output signal during a first time period and wherein said processor is arranged to suppress the output signal for a second time period after the first time period has ended.

41. Apparatus as claimed in claim 34 wherein the processor comprises one or more of combinatorial and sequential logic, an application specific integrated circuit, a central processing unit executing software and a digital signal processor executing software.

42. Apparatus, as claimed in claim 34 wherein at least a frequency of the second tonal component is substantially identical to a frequency of the input tonal component.

43. Apparatus as claimed in claim 34 wherein said apparatus is for maintaining said input tonal component by extending said input tonal component, wherein said input tonal component has a phase and a frequency, wherein said output signal comprises at least in part said input tonal component and at least a part of said second tonal component and wherein said processor is arranged to generate said second tonal component with a phase and frequency derived from the phase and frequency of said input tonal component.

44. Apparatus, as claimed in claim 43, wherein the phase and frequency of the second tonal component are substantially identical to the phase and frequency of the input tonal component.

45. Apparatus as claimed in claim 34 wherein the apparatus is for maintaining the input tonal component by regenerating the input tonal component, wherein said processor suppresses the input tonal component, and wherein said second tonal component in said output signal is maintained for a predetermined minimum duration.

46. Apparatus as claimed in claim 45 wherein the input tonal component is processed in blocks of samples and wherein the processor detects the input tonal component during the first received block of the input tonal component and wherein the output signal including the second tonal component is commenced during a block of the input tonal component samples displaced from the first block by a predetermined number of blocks.

47. Apparatus as claimed in claim 46 wherein the generation of the second tonal component continues after the termination of said input tonal component by a duration proportional to the duration of said predetermined number of blocks.

48. In a communication system adapted to transmit a communication signal comprising an input speech component and an input tonal component, a method of maintaining the input tonal component comprising:

receiving the communication signal;

detecting the input tonal component;

generating a second tonal component responsive to the input tonal component having at least a frequency related to a frequency of the input tonal component;

generating an output signal responsive to said input signal, said output signal comprising at least in part said second tonal component; and

transmitting the output signal, including said second tonal component.

49. A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a dual-tone multi-frequency (DTMF) signal.

50. A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a facsimile tone signal.

51. A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a dial tone signal.

52. A method as claimed in claim 48 wherein the input tonal component and the second tonal component each comprises a busy tone signal.

53. A method as claimed in claim 48 and further comprising processing said input tonal component in blocks of samples and wherein said detecting occurs after processing a predetermined number of said blocks.

54. A method as claimed in claim 48 wherein said generating an output signal comprises:

generating said second tonal component in said output signal during a first time period; and

suppressing the output signal for a second time period after the first time period has ended.

55. A method as claimed in claim 48 wherein at least a frequency of the second tonal component is substantially identical to a frequency of the input tonal component.

56. A method as claimed in claim 48 wherein said method is for maintaining said input tonal component by extending said input tonal component, wherein said input tonal component has a phase and a frequency, wherein said output signal comprises at least in part said input tonal component and at least a part of said second tonal component and wherein said generating said second tonal component comprises generating said second tonal component with a phase and frequency derived from the phase and frequency of said input tonal component.

57. A method, as claimed in claim 56, wherein the phase and frequency of the second tonal component are substantially identical to the phase and frequency of the input tonal component.

58. A method as claimed in claim 48 wherein the method is for maintaining the input tonal component by regenerating the input tonal component, wherein said method further comprises suppressing the input tonal component, and wherein said generating a second tonal component comprises maintaining said second tonal component for a predetermined minimum duration.

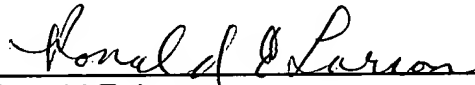
59. A method as claimed in claim 58 and further comprising processing the input tonal component in blocks of samples wherein said detecting comprises detecting the input tonal component during the first received block of the input tonal component and wherein said generating an output signal comprises commencing the second tonal

component of the output signal during a block of the input tonal component samples displaced from the first block by a predetermined number of blocks.

60. A method as claimed in claim 59 wherein said generating a second tonal component continues after the termination of said input tonal component by a duration proportional to the duration of said predetermined number of blocks.

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